



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification<sup>6</sup> :</b> <b>C01F 17/00, C09K 11/08, 11/85</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 97/46488</b> <b>(43) International Publication Date:</b> 11 December 1997 (11.12.97)
<b>(21) International Application Number:</b> PCT/US97/09738 <b>(22) International Filing Date:</b> 4 June 1997 (04.06.97)  <b>(30) Priority Data:</b> 60/019,368      5 June 1996 (05.06.96)      US 08/850,740      2 May 1997 (02.05.97)      US  <b>(71) Applicant:</b> SARNOFF CORPORATION [US/US]; 201 Wash- ington Road, Princeton, NJ 08543-6449 (US).  <b>(72) Inventor:</b> KANE, James; 32 Royal Oak Road, Lawrenceville, NJ 08648 (US).  <b>(74) Agents:</b> GAYBRICK, Robert, J. et al.; Morgan, Lewis & Bockius LLP, 1800 M Street, N.W., Washington, DC 20036 (US).	<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>	

**(54) Title:** METHOD FOR PREPARING SMALL PARTICLE SIZE FLUORIDE UP-CONVERTING PHOSPHORS

**(57) Abstract**

Spherical particles of fluoride up-converter phosphors having a particle size of 1 micron and less can be made from their corresponding precursor hydroxycarbonate particles by heating the hydroxycarbonate particles in an oxygen-containing atmosphere to convert the hydroxycarbonate to the corresponding oxide but without changing the size and shape of the particles, and then heating the phosphor oxide particles to their corresponding fluoride particles by heating in SF<sub>6</sub>, at a temperature that will crack the SF<sub>6</sub> but will not change the size or shape of the phosphor particles.

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Title: WO9746488A1: METHOD FOR PREPARING SMALL PARTICLE SIZE FLUORIDE UP-CONVERTING PHOSPHORS[French]

Derwent Title: Spherical phosphor fluoride particles of uniform size - are capable of emitting visible, when excited by long wavelength light, useful in, e.g. diagnostic antibody-antigen assays

Country: WO World Intellectual Property Organization (WIPO)  
Kind: A1 Publ. of the Int. Appl. with Int. search report

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Assignee: SARNOFF CORPORATION, 201 Washington Road, Princeton, NJ 08543-6449, United States of America  
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Published / Filed: 1997-12-11 / 1997-06-04

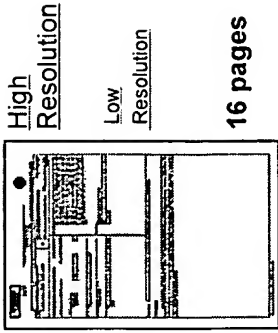
Application Number: WO1997US0009738

IPC Code: C01F 17/00; C09K 11/08; C09K 11/85;

ECLA Code: C01F17/00J2; C09K11/08C; C09K11/475C;

Priority Number: 1996-06- US1996000019368P

Abstract: Spherical particles of fluoride up-converter phosphors having a particle size of 1 micron and less can be made from their corresponding precursor hydroxycarbonate particles by heating the hydroxycarbonate particles in an oxygen-containing atmosphere to convert the hydroxycarbonate to the corresponding oxide but without changing the size and shape of the particles, and then heating the phosphor oxide particles to their corresponding fluoride particles by heating in SF6, at a temperature that will crack the SF6



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but will not change the size or shape of the phosphor particles.  
[French]

⌘ Attorney, Agent  
or Firm:  
⌘ INPADOC  
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**GAYBRICK, Robert, J. ;**

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+ **METHOD FOR PREPARING SMALL PARTICLE SIZE  
FLUORIDE UP-CONVERTING PHOSPHORS**

This invention relates to the preparation of fluoride up.



+ **BACKGROUND OF THE INVENTION**  
+ **DETAILED DESCRIPTION OF THE INVENTION**

⌘ First Claim:

Show all claims 1. A spherical phosphor fluoride particle that  
emits light in the visible wavelength range when excited by long  
wavelength light that has a particle size of less than one micron. †

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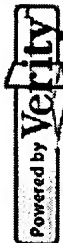
PDF	Patent	Pub.Date	Inventor	Assignee	Title
	US6251304	2001-06-26	Wegh; Rene T.	U.S. Philips Corporation	Luminescent material
	US6039894	2000-03-21	Sanjurjo; Angel	SRI International	Production of substantially monodisperse phosphor particles

⌘ Other Abstract  
Info:

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